PlantWatchPRO

supervisor for small-medium installations

CAREL

ENG Configuration guide

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READ AND SAVE THESE INSTRUCTIONS

Integrated Control Solutions & Energy Savings

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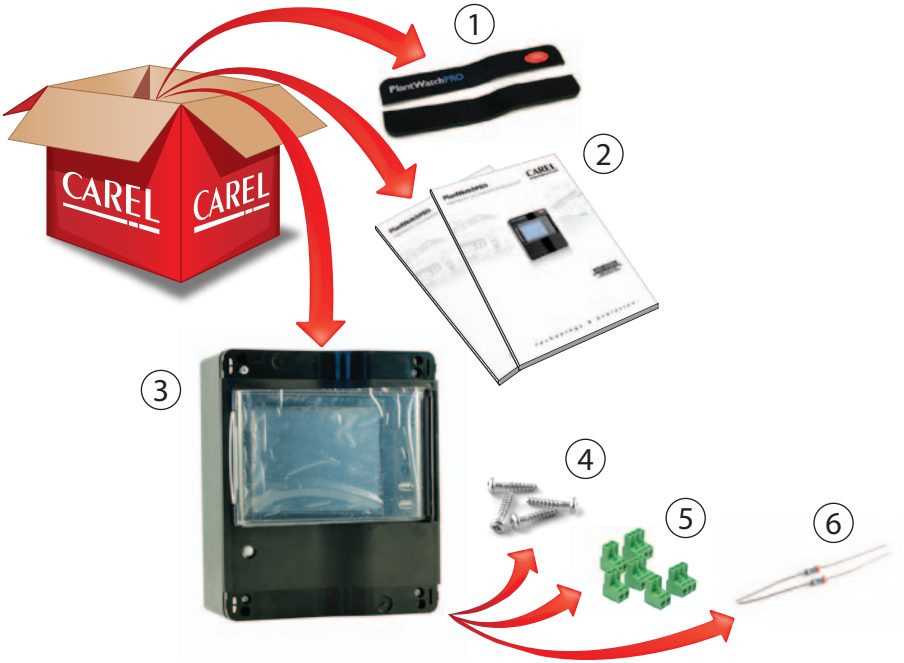
Before performing any operations, check that the PlantWatchPRO box contains:

1. the two plastic faceplates (top and bottom);
2. technical documentation;
3. the device itself;
4. four screws (already inserted in position);
5. the terminals (six, already connected to the board);
6. two resistors (inside the case).



1. PRESENTATION

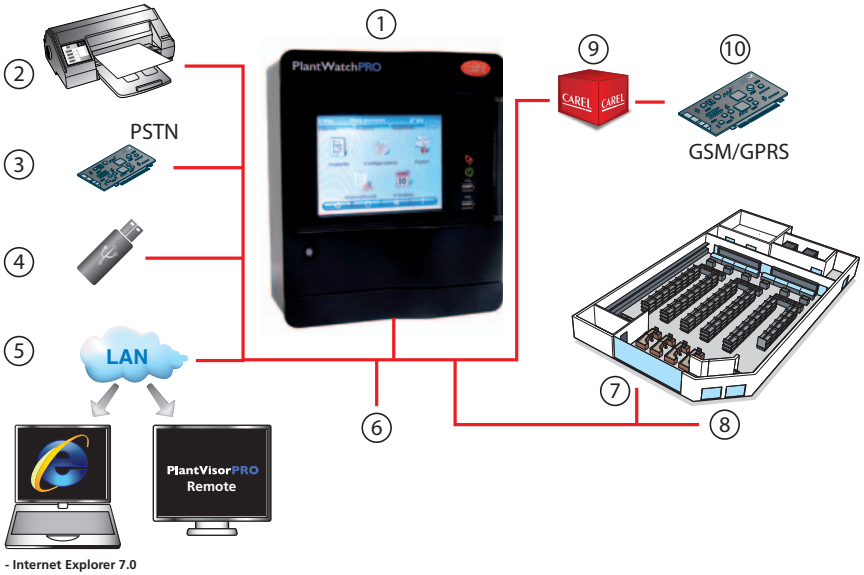
PlantWatchPRO is the new solution from CAREL for the supervision of small-medium installations.
Complete network and alarm configuration, simple navigation and an attractive design are some of the features that make PlantWatchPRO the cutting edge product in its category.
A colour LCD touchscreen, and the use of practical menus, guide the user simply and intuitively, without the use of a PC (however a PC can be connected if necessary), thus providing a practical solution for all those environments that do not have room for a computer.
Other innovative features of PlantWatchPRO include:

- possibility to connect and control up to 100 devices;
- possibility to connect and control CAREL or Modbus® devices on RS485 bus;
- record up to a maximum of 100 variables;
- log data for up to one year (with 15 min sampling).
- connection to CAREL remotePRO and remoteValue remote supervision systems;
- a Guardian program that boosts and improves system reliability;
- 3 output relays, for alarm signals or activating lights and defrosts;
- possibility to export data (alarms, events, system and model configurations and variable reports) using a USB memory key (the data are downloaded in a format that is compatible with Microsoft® Excel and Microsoft® Word);
- import new standard or custom devices;
- display graphs;
- proximity sensor that activates the display without the user needing to open the cover;
- external buzzer management;
- complete alarm configuration;
- phone book for SMS contacts, fax numbers, e-mail addresses;
- active defrost management;
- possibility for multiple users to access the system, with different privileges (administrator, normal user, user with privileges);
- instrument suitable for technical environments, no moving parts.

Key:

1	touch screen
2	proximity sensor
3	alarm light
4	device on light
5	USB port
6	transparent cover

General diagram of PlantWatchPRO connections



Key and product codes:

1	PlantWatchPRO
2	PostScript-enabled USB printer
3	PSTN analogue modem (version PWPROM0000 only)
4	USB memory key
5	PC (via LAN)
6	3 relay outputs
7	Installation: Modbus® RTU line
8	Installation: CAREL line
9	GSM/GPRS modem connection kit(code PWOPMD0000)
10	optional GSM/GPRS modem (code PLWOPGSM00) *required to be able to use all the SMS functions;* *using modems other than the one supplied by CAREL will not guarantee correct operation of the appliance and technical service*

2. KEY

	note	highlights an important point; in particular as regards the practical use of the various product functions
	warning	warns the user of critical areas for the use and safety of PlantWatchPRO
	USB key	indicates that the function can only be accessed directly from PlantWatchPRO (not via web) and using a USB memory key
	tutorial	offers the user some simple configuration examples of the most common settings for the supervision of an installation

3. START UP

Configuration wizard

❶ When PlantWatchPRO is first started, the following presentation screen will be displayed

Pressing ▶ accesses the page for selecting the LANGUAGE and the TIMEZONE.

❷ Press the corresponding fields to select the desired items from the lists. The selection is confirmed by moving to the following screen (▶ button)

❸ Now enter the date and time by selecting the corresponding fields.

The date format is "yyyy/mm/dd" and the time format is "hh/mm".

❹ As the final phase in the program initialisation process, the previous selections need to be confirmed by pressing the END button or going back (with the ◀ button) and changing the settings.

⚠ ***Warning:*** *check the settings carefully before pressing END as once confirmed, the other languages and time zones can no longer be recovered.*

A confirmation message then notifies the user that the settings have been saved and, once the system has been rebooted, the PlantWatchPRO main menu will be accessed.

⚠ ***Warning:*** *the following default values are used when first logging in: USER: "Admin" PASSWORD empty; once having logged in, it is recommended to immediately change the Admin user password and keep it in a safe place: losing this information may compromise access to the system*

4. CONFIGURATION

Line configuration

Line 1 and Line 2

(these are the two lines that can be configured for the installation: choose "line 1" and then proceed in the same way for the second line, if used).

Devices

To add (+) (or where necessary remove (−)) devices to/from the installation, choose the type (from those available in the PlantWatchPRO archive), then assign a short custom description and assign the address (this must be different for each device on the same line, otherwise the program will display an error message); a group can also be assigned (up to 5 groups are available), used to apply specific rules and enable or disable the device according to special needs.

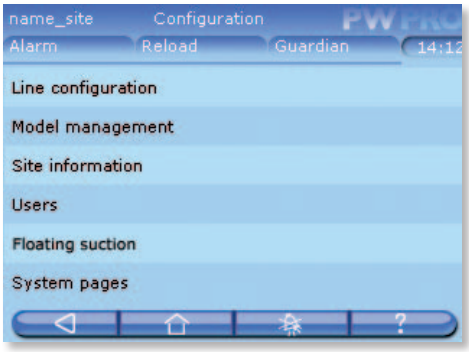
Disabling a device means that any alarms it generates will not be managed.

Device customisation

List of devices configured on the line; this is used to display the variables and if necessary change the description.

Connection

To set the protocol (CAREL-RS485 or Modbus®-RS485) and configure the serial port parameters.

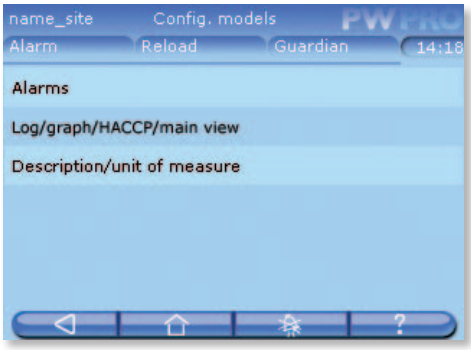


Model management

Model configuration

Used to configure the models corresponding to the instruments, that is:

- Alarms (priority and enable/disable);
- Log/graph/HACCP/main view;
- Description/unit of measure (custom description and unit of measure).



Export model

To export models .

Check that there is free space on the USB memory key.

Import model

The following models of devices can be imported:

- standard models (downloaded from http://ksa.carel.com);
- models exported from PlantWatchPRO;
- models created or modified using Device Creator.

To import a **standard model** (e.g.: *newstandardmodel*), download the .zip file from http://ksa.carel.com and unzip the file into the main directory of a USB pen drive. At the end of the procedure, make sure that the "\models\standard*newstandardmodel*\" path has been created on the USB pen drive.

To import a **model exported from PlantWatchPRO** (e.g.: *IR33*) make sure the .xml the file is placed on the USB pen drive in "\export*sitename*\models*IR33.xml*".
(sitename is the name of the site set on the Configuration -> Site information page in the PlantWatchPRO that the model was exported from; if the model is exported directly to the USB pen drive, the path is created automatically).

To import a **model created or modified using Device Creator** (e.g.: *mymodel.xml*) make sure the .xml the file is placed on the USB pen drive in "export\mydirectory\models*mymodel.xml*. (*mydirectory* can be any name).

Important: if the Device Creator version is lower than 3.0 the .xml file must be located in \models\dcreator*mymodel.xml*

Important: *if importing an existing model, some of the data will be overwritten.*

Copy model

Used to create new models based on an existing model, then making the desired changes.

Updating the model used as the basis for others also changes all the models derived using the copy function.

Remove model

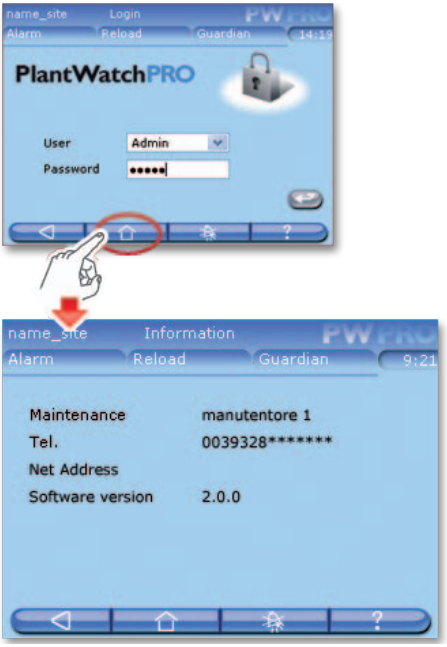
To remove a model that is not used by the installation and thus free up part of the PlantWatchPRO memory.

Site information

This is used to enter the information relating to the site where PlantWatchPRO is installed, plus some information on technical service for support in the event of problems.

The text entered in the MAINTENANCE TECH. and TELEPHONE fields will be displayed when pressing the *button from the login screen, so as to indicate who to contact in the event of need.*

The PASSWORD IDENT and CONFIRM (password) fields must be completed if a password needs to be set for the connection to remoteValue.



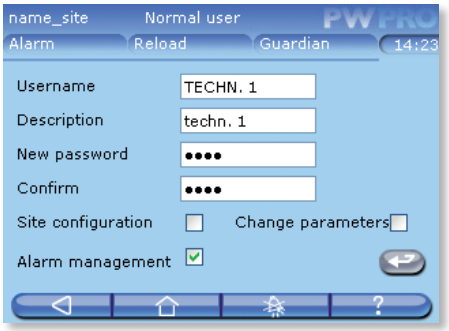
Users

Administrator

Used to modify the password for the administrator user.

Normal user

Used to create new users and assign them different privileges (site configuration/change parameters/ alarm management).



Remote service

Used to configure the user for remote service. For system security, the remote service user is normally disabled and should be only enabled when remote service is required.

Floating suction

Used to configure and activate the floating suction pressure control function.

Rack 1 (or 2)

Information

For details on the operating status and information on the showcases and compressor racks.

Configuration

To configure the compressor racks, set the connected showcases, the main parameters for the floating suction pressure control function algorithm and reset the algorithm calculation period for one or more showcases.

System pages

Reload configuration

This is the function that makes the changes made to the previous configuration effective.

No changes to the system will be active unless the Reload *button is pressed, which remains red (* Reload *) as a reminder, while the system is still in the previous configuration. Only after having confirmed the changes on the reload page will the system be updated.*

Backup/Restore

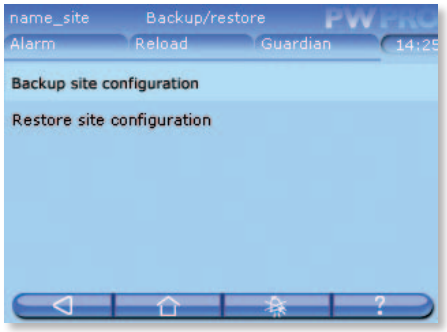
Backup site configuration

Once an installation has been configured, the configuration can be saved and exported and then used to configure another PlantWatchPRO.

Operation also available via web

Restore site configuration

Import the system configuration from a USB key



Restore point

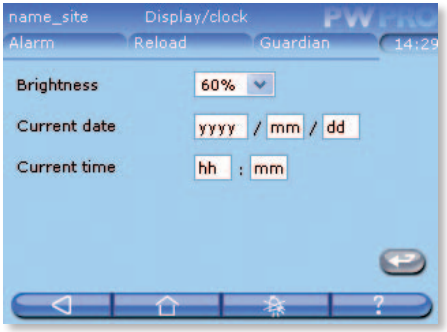
This function creates and loads a complete image of the system; the function is used to restore the system in the event of serious errors and/or faults.

Update software

To update the PlantWatchPRO software, see Chap. "13. Use of the USB memory key" .

Display/Clock

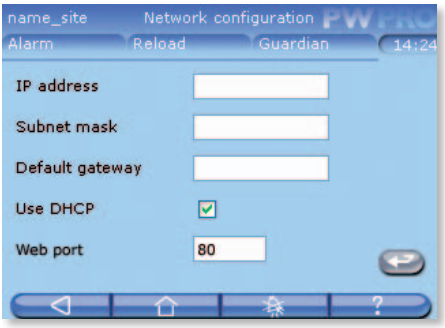
Control panel for the date/time and display settings.



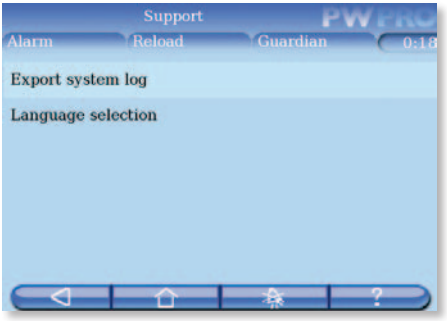
Network configuration

Configuration of the network settings for the local network (LAN) connection.

By default, the USE DHCP item is selected, which allows the system to detect the network settings automatically. The network settings should only be configured manually by qualified personnel.

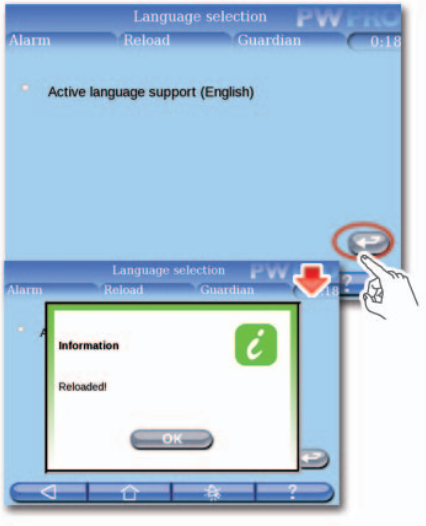


Support



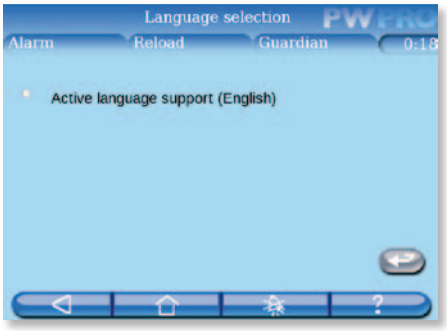
Download service log

This page is used to export the information to be sent to the service centre when problems occur. After having inserted the USB memory key, select send to start the operation.



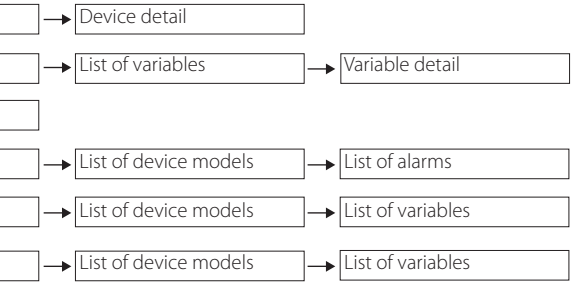
Language selection

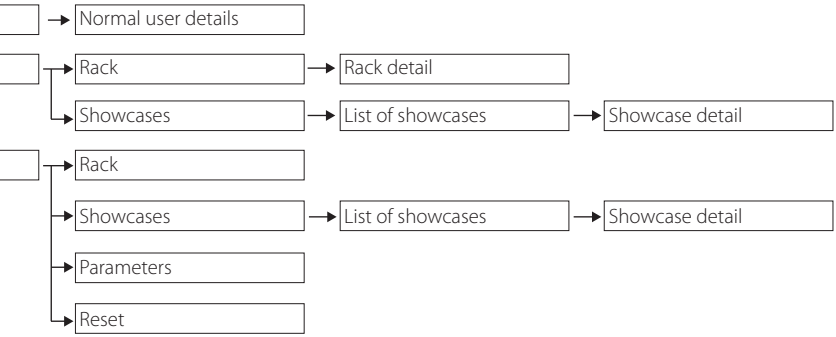
Support language activation, this function changes the language displayed, setting English as the auxiliary language



Tree of the "Configuration" menu functions

- **Line config.**
  - Line 1/2
    - Device list
    - Device customisation
    - Connection
- **Model management**
  - Model configuration
    - Alarms
    - Log/graph/HACCP/main view
    - Description unit of measure
  - Import standard models
  - Export model
  - Import model
  - Copy model
  - Remove model
- **Site info**
- **Users**
  - Administrator
  - Remote user
  - Normal user
    - List of normal users
- **Floating Suction**
  - Rack 1/2
    - Information
    - Configuration
- **System pages**
  - Reload configuration.
  - Backup/restore
    - Backup site configuration
    - Restore site configuration
    - Restore point
  - Update software
  - Display/ clock
  - Network configuration
  - Support
    - Download service log
    - Language selection


Device detail
List of variables
Variable detail
List of device models
List of alarms
List of device models
List of variables
List of device models
List of variables

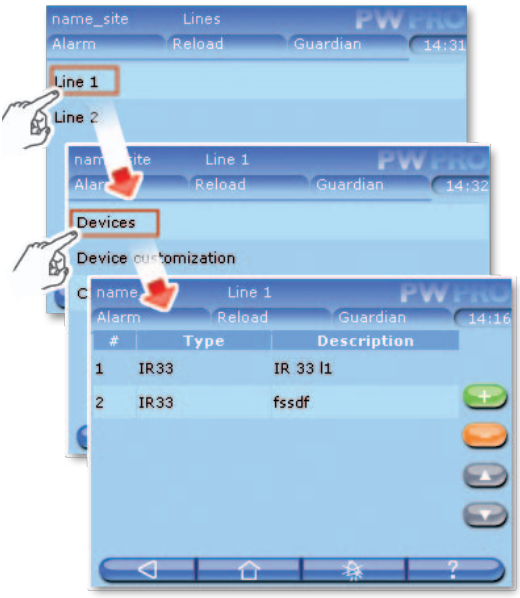

Normal user details
Rack
Rack detail
Showcases
List of showcases
Showcase detail
Rack
Showcases
List of showcases
Showcase detail
Parameters
Reset

How to configure a simple line

First of all, the user needs to configure PlantWatchPRO in relation to the devices in the specific installation.

1. From the home page, enter the menu CONFIGURATION → LINE CONFIGURATION → LINE 1 → DEVICES menu. Progressively add all the devices featured in the installation and connected to line 1, assigning a specific description, an address and if necessary add the device to a group (up to five groups are available) for applying one or more rules (see the part of the manual corresponding to the SCHEDULER menu).

   Each device on the same line must have a different address from the others, otherwise, if the same address is assigned twice, an error message will be displayed.

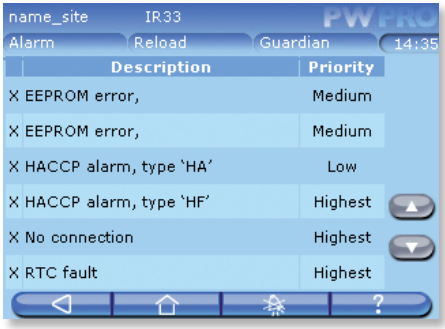


2. After having entered the devices, go back and press the LINE 1 → DEVICE CUSTOMISATION item. Here the name of each individual device and each related variable can be customised.

3. Go back and choose the type of CONNECTION, from the standard protocols proposed, the connection speed (BAUD RATE), the number of DATA BITS, the PARITY and the number of STOP BITS.

4. Repeat 1, 2 & 3 for LINE 2 (if used).

5 Entering MODEL MANAGEMENT → MODEL CONFIGURATION → ALARMS and choosing the devices on the two lines from the list one at a time, the alarms can be enabled or disabled and the priority set (the priority of an alarm will be indicated in the list with a different colour, depending on the level).

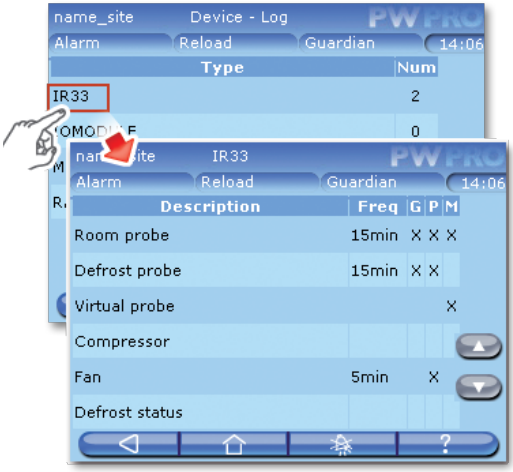


6 Then return to the previous menu and enter LOG/GRAPH/HACCP/MAIN VIEW → DEVICE DETAIL → VARIABLE DETAIL →; a screen will be displayed for selecting: the frequency for recording the value of the variable, the colour used to draw the curve showing the trend of this variable on the graph, and if required include the variable in the report and/or on the graph.

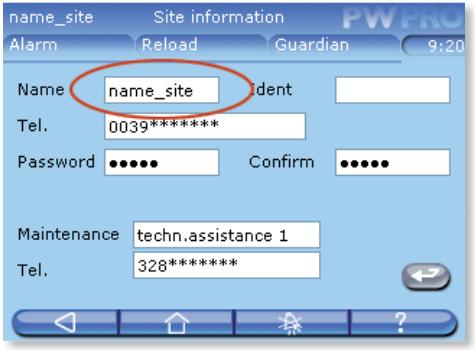
In the list of variables logged, the columns have the following meanings: Freq: sampling frequency. G: variable displayed on the graph. P: variable included in the HACCP report. M: variable included in the main list of devices in the installation (INSTALLATION menu).

The data recording period depends on the sample time, as shown in the table below:

Sampling time	Recording period
30 s	13 days
1 min	26 days
3 min	80 days
5 min	133 days
15 min	400 days

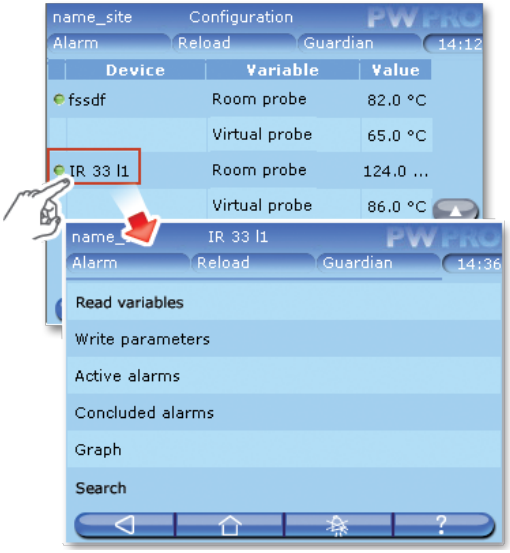


❼ DESCRIPTION/UNIT OF MEASURE is used to change the name and unit of measure of the variables.



❽ Reload the configuration, using the Reload button and the dedicated screen.

The line is thus configured, and from the INSTALLATION menu all the settings defined thus far can be displayed under CONFIGURATION.

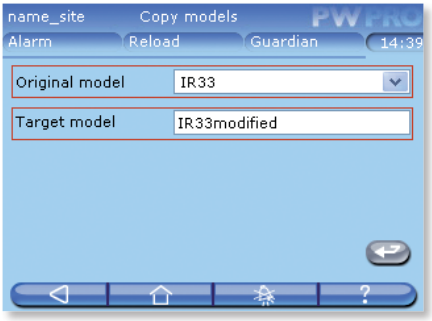


How to differentiate a device (or a group of devices) from the standard

An example of how to create another model of device with other features starting from the IR33

1. From the home page, enter the CONFIGURATION → MODEL MANAGEMENT → COPY MODELS→ menu, from the ORIGINAL MODEL list choose the standard model to start from (in the example, "IR33") and in the field TARGET MODEL field enter the name to be given to the new model (in the example, the new model has been called "IR33modificato")

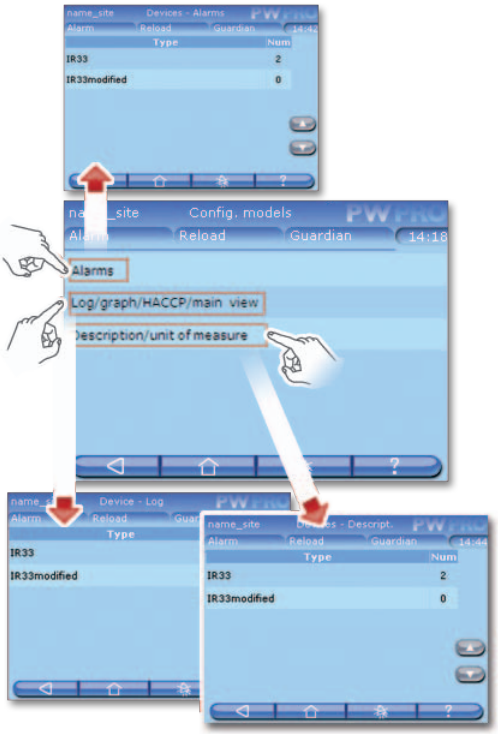
   The model created is now identical to the one used as the starting point.



2. Return to the MODEL MANAGEMENT→ MODEL CONFIGURATION → menu to customise the new devices created, changing the settings relating to:
   - ALARMS;
   - LOG/GRAPH/REPORTS;
   - DESCRIPTION/UNIT OF MEASURE.

   A model can thus be created that is different from the one used as the starting point, based on specific needs.

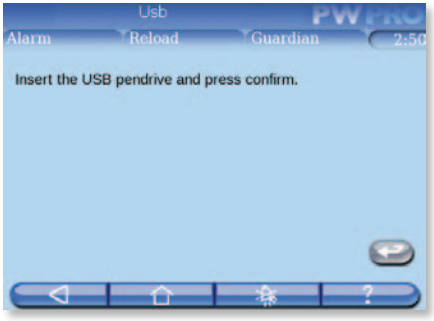
   After having created the new model with different features from the standard IR33, these types of devices can be installed, following the first steps in the sequence of operations presented in the TUTORIAL on the configuration of a simple line.



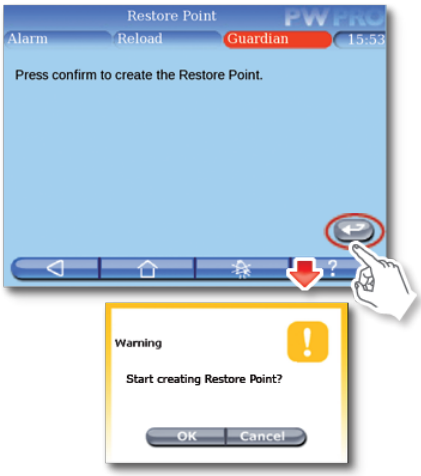
How to create a Restore Point

1. Select CONFIGURATION → SYSTEM PAGES → BACKUP/RESTORE → RESTORE POINT

2. Press CONFIRM



3. Select "USB key" and then CONFIRM



4. Once having confirmed the restore point creation screen, the system reboots.

5 On reboot, the creation of the restore point is added to the vents

A file is created on the key:
F:/.restore/restoreYYYY-MM-DD-hh-mm-ss
where

- F: indicated the USB drive
- YYYY year
- MM month
- DD day
- hh hours
- mm minutes
- ss seconds

How to use a previously created Restore Point

1. When starting the system, PlantWatchPRO checks for any USB keys inserted, in the logical sequence USB1, USB2,USB3, if a key is detected it checks for a restore point, and if a restore point is found the system proposes the following screen.

2. the user then has 10 seconds to accept the restore point, after this time the system starts normally.
If any area of the screen is selected, the restore procedure starts.

3. In the event of problems, such as insufficient space on the USB key or read and/or write problems during the procedure, the system will warn the user with a error message, awaiting confirmation by the user, after the which the system will be rebooted.

If the USB key has more than one restore point, the unwanted restore point files should be deleted, so as to make sure that PlantWatchPRO only restores the desired configuration.

Important: *once the backup or restore procedure has started, do not touch the screen and do not remove the key until the operation has terminated. The operation may take a number of minutes. At the end of the operation, the initial login screen is shown.*

5. SCHEDULER

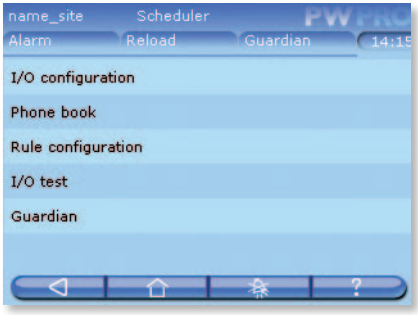
I/O configuration

This menu is used to configure the number of attempts at an alarm signal (if the previous was not successful) and the interval between the one attempt and the next at the following signals:

- fax;
- SMS;
- e-mail;
- PlantVisorPROremote.

As regards the e-mail addresses, the data relating to the server and the Dial-Up connection can be simply and intuitively configured on PlantWatchPRO.

In addition, the procedure and time for resetting the buzzer and the three relays can also be set.



Phone book

Up to five fax recipients, five SMS numbers, five e-mail addresses and one remote access connection can be configured.

Each recipient may have more than one number or address, separated by semi-colons (;),as in the most commonly used e-mail programs

What is a rule? *For each alarm or group of alarms (including from different devices), a series of rules can be defined, which may be:*

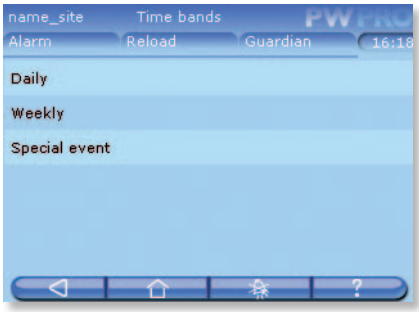
- *a set of actions (fax, SMS, e-mail, print, activate relay, buzzer, remote access);*
- *a time band;*
- *a delay.*

If an alarm goes off, the actions are performed. If a delay is set, the actions are performed after having waited the time set for the delay. If the time band is set, the actions are only performed if the alarm is activated within the time band.

Rule configuration

Time bands

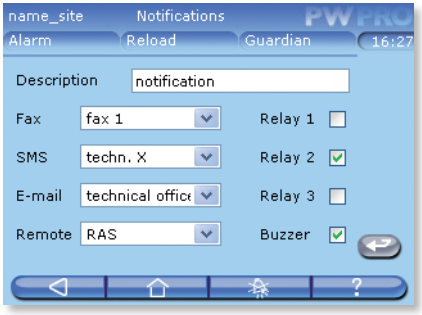
Used to enter time bands for implementing the rules; the DAILY/WEEKLY/SPECIAL EVENT submenu can be used to add or remove time bands of different durations that can be completely customised by the user.



Actions

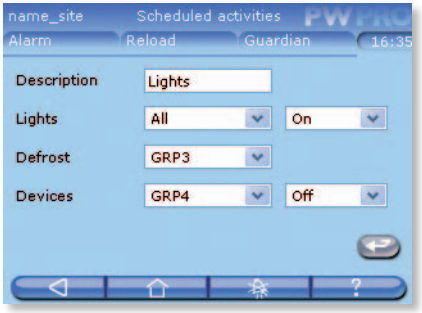
Notifications

Configuration of the parameters for the notifications and the activation of the alarm channels.



Scheduled activities

List of the scheduled activities; the parameters controlling the various activities can be set, where necessary assigning them to a certain group of devices (set during the configuration procedure).



Reports

Used to create and set a new scheduled action that sends a report by e-mail and/or prints a hard copy.

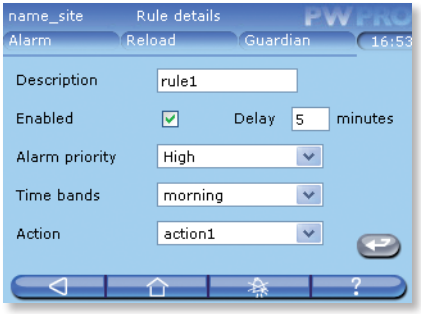
Data saving

This function is used to create a scheduled action to automatically save a report to USB memory key. Associated with a coherent time band using a scheduled rule, the report is downloaded automatically.

Rules

Display the list of rules for notifying the alarms; rules can be added/removed or edited, pressing the detail of the rule to open the special menu for setting the configuration parameters.

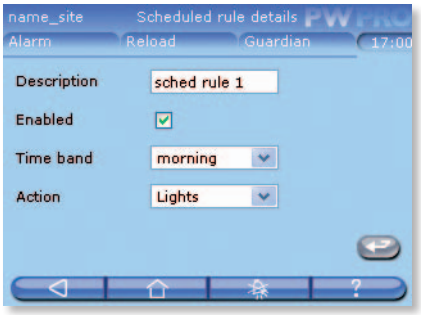
For correct data entry, first create the time bands and the actions.



Scheduled rules

Display the list of scheduled rules; scheduled rules can be added/removed or edited, pressing the detail of the rule to open the special menu for setting the configuration parameters.

***Sign of life:** this function can be used to enter a scheduled command that sends a sign of life (notification action) via one of the channels available*



I/O test

Test the correct operation of the Input/Output channels.

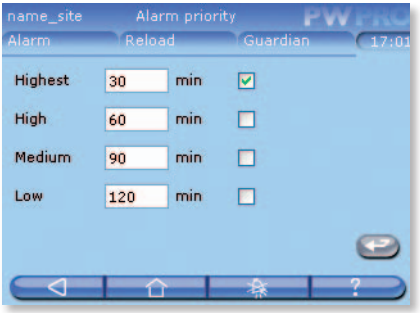
Guardian

Notifications

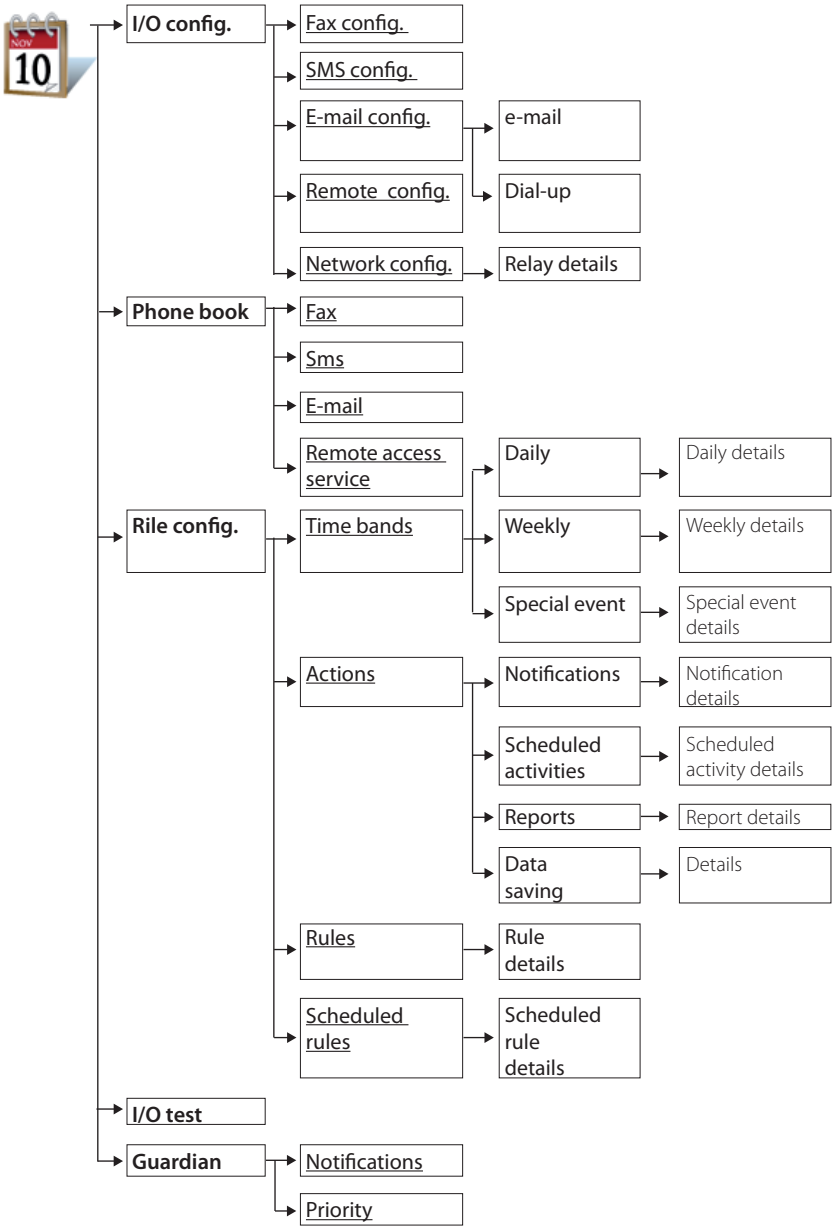
Configuration of the notification parameters for the "Guardian" program; the channels set are used by the "Guardian" to send notifications of any malfunctions on PlantWatchPRO to the technical personnel indicated.

Alarm priority

Used to configure the priority of the alarms, entering the settings in the respective fields.
If the type of the alarm is selected, the "Guardian" program checks that the alarm is managed within the maximum time specified in the field. If this is not the case, notification is sent via the channels configured in the NOTIFICATIONS menu.



Tree of the "Scheduler" menu functions



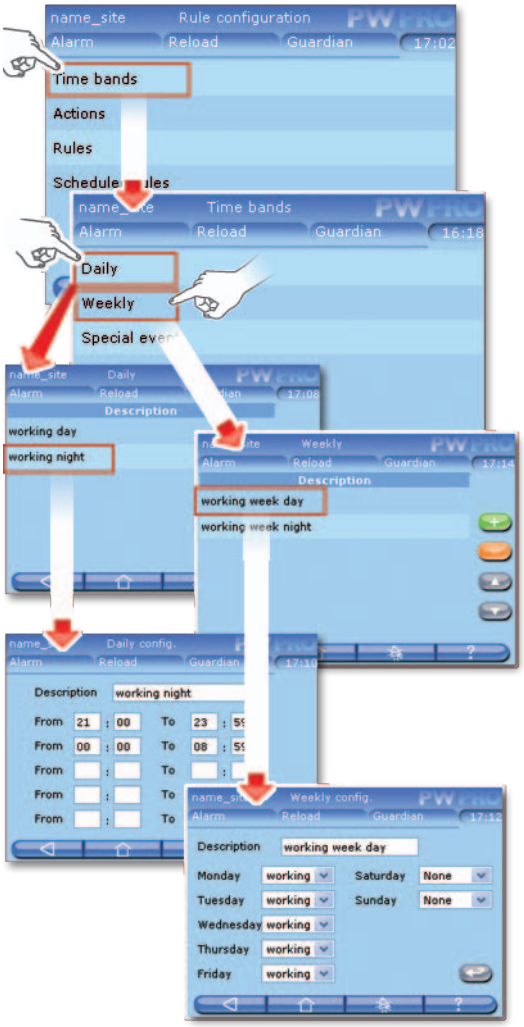
How to set scheduled rules

Below is a step-by-step description of how to turn off the lights at 20:00 each working day and turn them on again in the morning at 9:00.

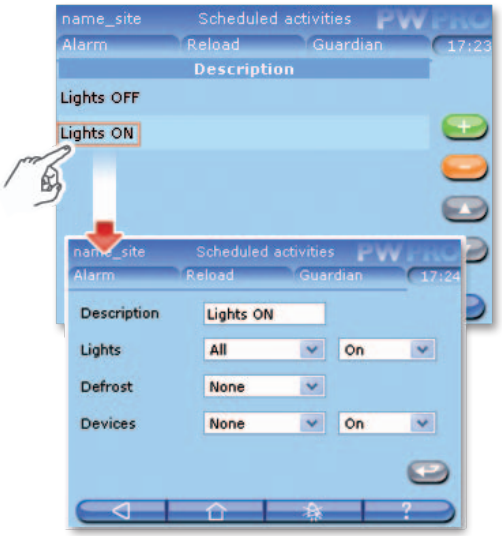
1. From the home page, enter the SCHEDULER → RULE CONFIGURATION → TIME BANDS → DAILY → menu: enter the daily time bands for switching the light off or on; in the example two time bands have been created, called "working day" "(09:00-20:00)" and "working night""(20:01-08:59)".

   To set the night-time band "21:00-06:00", it must be divided into two bands: "21:00-23:59" and "00:00-06:00".

2. From the TIME BANDS → WEEKLY → menu: now create the weekly light On/Off time bands; in the example two bands have been created relating to day and night (day= lights on, night= lights off), called "working week day" and "working week night", entering first the daily time bands created previously on the days from Monday to Friday (premises considered closed Saturday & Sunday).



❸ Return to the RULE CONFIGURATION → ACTIONS → SCHEDULED ACTIVITIES → menu: enter the desired actions (on the entire installation or just on some devices, using the option for assigning the actions to the GROUPS). Two actions have been created, "lights ON" and "lights OFF", turning the lights on and off respectively



❹ Then go to RULE CONFIGURATION → SCHEDULED RULES → : enter the new scheduled rules, that is, one that acts in the time band when the lights should be on, activating the action that switches the lights on (this rule will be called "lights on (day)") together with another rule that switches the lights off, thus activating the "lights OFF" action (this rule has been called "lights off (night)".

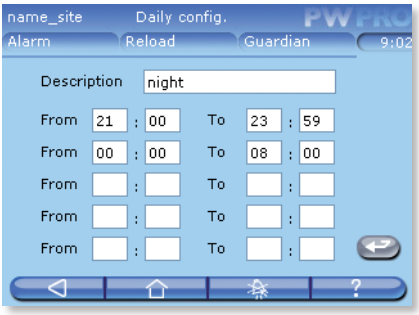
In four steps, a scheduled activity has been set that automatically switches the lights on and off; the same procedure can be used to create other rules acting on the installation (entire installation or just some devices.

How to set the rules

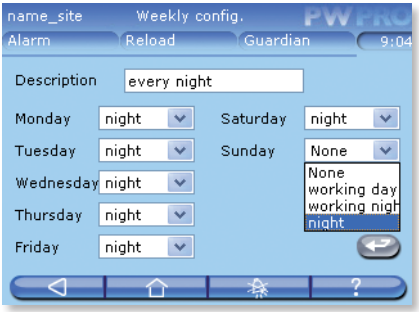
Below is a description of how to set PlantWatchPRO to notify a highest priority alarm activated in the night-time time band (21:00-08:00) via SMS.

1. From the home page, enter the SCHEDULER → RULE CONFIGURATION → TIME BANDS → DAILY → menu: create a time band that goes from 21:00 to 08:00; in the example this has been called "night".

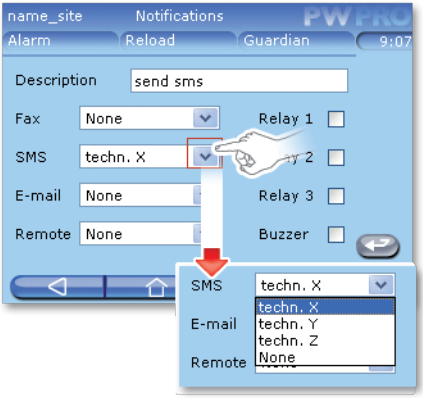
   Remember that to set the night-time band "21:00-08:00" it must be divided into "21:00-23:59" "00:00-08:00".



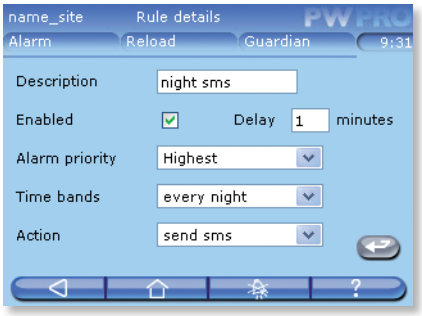
2. Return to TIME BANDS → WEEKLY → : create a weekly time band in which the "night" daily band is applied every day of the week; this weekly time band has been called "every night".



3. Return to the RULE CONFIGURATION → ACTIONS → NOTIFICATIONS → menu: enter the notification action "send SMS", selecting from the SMS list the telephone number of "maintenance tech. X" to send the SMS to as the only notification channel.



4. Return to the RULE CONFIGURATION → RULES → menu: now create a rule (called "night SMS"), applying a DELAY of one minute (enter "1" in the corresponding field); from ALARM PRIORITY choose "Highest", from TIME BANDS, "every night" (band previously created in the corresponding menu) and finally, from ACTION "send SMS".

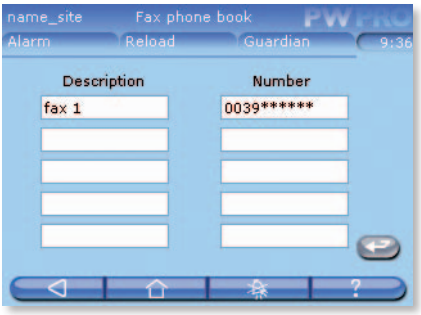


With these settings, as soon as a highest priority alarm is activated, on any night of the week, PlantWatchPRO waits one minute and, if within this time interval the alarm has not concluded, notification of a highest priority alarm will be sent via SMS to "maintenance tech. X".

How to configure the Guardian program

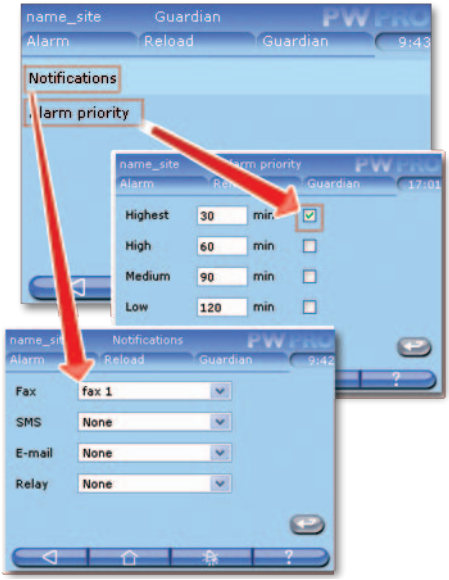
Below is a description of how to send a fax to a certain number if a highest priority alarm is activated on a field device.

1. From the home page, enter the SCHEDULER → PHONE BOOK → FAX → menu, and enter the fax number to send the notification to, with a short description



2. Return to the SCHEDULER and enter the GUARDIAN → NOTIFICATIONS → menu, choose the fax number set previously in the PHONE BOOK from the list.

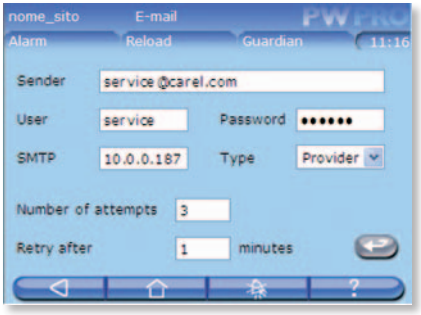
3. Return to the GUARDIAN and enter the ALARM PRIORITY → menu, select the type of alarm to be managed using the Guardian program; in this case select "Highest", to have the alarms with the highest priority signalled via fax if the system does not manage them within 30 minutes ("30 min" is the time set by the user).



How to configure email

Below is a step-by-step description of how to configure the parameters to allow PlantWatchPRO to send email.

1. From the home page enter the SCHEDULER → I/O CONFIGURATION → E-MAIL CONFIGURATION → E-MAIL menu to access the parameter configuration screen



2. Under SENDER enter the e-mail address of the sender of the e-mail

3. The USER, PASSWORD and SMTP fields should be completed with the data supplied by the ISP.

   Warning: *the IP address, and not the URL, must be entered in the SMTP field. This configuration should be completed by qualified personnel (systems administrators)*

4. Then enter the NUMBER OF ATTEMPTS to be made and the delay between attempts (RETRY AFTER __ MINUTES field)

5. Under TYPE choose whether to access via LAN or via modem (Provider)

6. If accessing via modem (i.e. "Provider" has been chosen in the TYPE field), the Dial-Up also needs to be configured: From the home page enter theSCHEDULER → I/O CONFIGURATION → E-MAIL CONFIGURATION → DIAL-UP menu and enter the telephone NUMBER to connect to when sending e-mail, the USERNAME and PASSWORD.

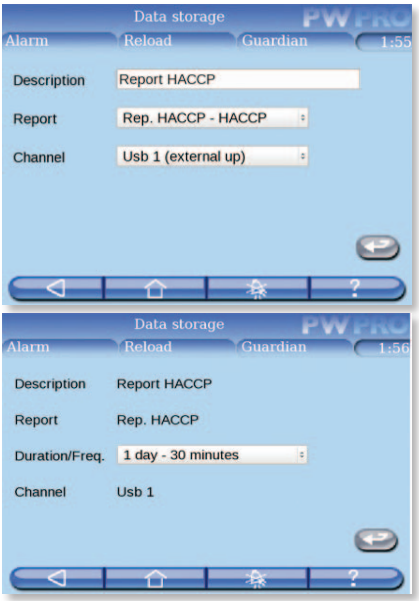
   Warning: *the telephone NUMBER, USERNAME and PASSWORD used on the Dial-Up configuration page are supplied by the ISP*

7. After having completed these steps, make sure that the e-mail communication channel has been configured correctly, using the special function: from the home page go to SCHEDULER → I/O TEST and choose the desired e-mail CHANNEL (e-mail address previously entered in SCHEDULER → PHONE BOOK → E-MAIL

How to create a scheduled rule to download a report from PlantWatchPRO

Below is the procedure for creating a schedule rule to save a HACCP report to a USB memory key inserted in the first slot at a set time. Firstly a time band and a HACCP report need to be created, as shown previously. Then:

1. From the home page, access SCHEDULER → RULE CONFIGURATION → ACTIONS → DATA SAVING
2. Add a new action, enter a description (e.g. HACCP report), select the report created previously to be downloaded and USB channel 1. Confirm and in the DURATION/FREQUENCY field select the desired combination (1 day/30 minutes), then select confirm to save
3. From the home page, access SCHEDULER → RULE → CONFIGURATION SCHEDULED RULES
4. Add a new scheduled rule, enter a description (Download report), select a time band (band 1) and the previously saved action. Save again and reload the configuration.
5. The rule saved will download the report to the selected USB channel at the time set in the time band



6 By default, a daily scheduled rule is set that downloads a HACCP report every day, with a frequency of 30 minutes, relating to the previous day. This rule is disabled, to enable it access SCHEDULER → RULE CONFIGURATION → SCHEDULED RULES, select the ALL_HACCP rule, select the "Enabled" option and then save and reload the configuration

6. CONDITIONS FOR CORRECT CONFIGURATION

Important:

• Strictly follow the connection diagrams shown in the user manual and the instructions provided.

• CAREL cannot be held liable for malfunctions, breakages, accidents or anything else due to unawareness of or failure to heed the following instructions.

• Correct operation of the instrument is only guaranteed if the firmware and software remain unchanged.

Connectivity and peripherals

- The supervisory system can be connected to external peripherals (printer, GSM modem etc.), as long as such peripherals have been approved by CAREL.
- The supervisory system must be able to send notifications via the set channels: relay, email, fax, SMS, remote alignment. For this purpose, the system must be connected to a dedicated analogue telephone line or a LAN. In the latter case, the customer must check the network configuration so as to make sure that the system can perform the notification actions. Alternatively, the system can be connected to a CAREL-approved external GSM modem.
- For each notification (e.g. sending an alarm signal to three different recipients via e-mail), a test must be performed for each individual recipient, so as to verify correct system configuration (the e-mail address or mail server configuration may be wrong). To run the tests, follow the notification test procedure described in the user manual.
- For notifications via SMS, make sure that the GSM modem connected to PlantWatchPRO can effectively send SMS messages (e.g. check signal coverage, make sure the SIM has credit, check correct operation of the modem and the connection to PlantWatchPRO.).
- For notifications via fax, make sure that the receiving fax appliance is correctly connected to the telephone line, is switched on and has enough toner and paper to receive the fax notifications. The international modem settings must be configured in accordance with the country where the unit is installed.
- Check compatibility between the remote and local modems, by running a communication test.

Safety warnings

- For adequate protection of the systems against any possible problems that may arise, two different physical communication channels should be used (e.g. PSTN and GSM modem, or ADSL and relay) so that the alarm signals can be sent and received with certainty. Alternatively, a guaranteed Ethernet connection in a company network can be used.
- To check correct operation of PlantWatchPRO and the communication channel, enable the sign-of-life signal, setting a frequency compatible with the importance of the system being monitored and the damage that may occur due to malfunctions (e.g. every 4 hours for refrigeration systems).
- The "guardian" component of the software (see the manual for further details) should be configured so that this notifies any problem situations (in particular, alarms not managed). Guardian notifications must be sent via all physical channels available and enabled (if a notification channel- e.g. fax - is not working correctly, the guardian must be able to use another – e.g. SMS with GSM modem – so that safety of the system is always ensured).

CAREL

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